



# 2014-2015 INFLUENZA SEASON SUMMARY REPORT

PHILADELPHIA DEPARTMENT OF PUBLIC HEALTH

During the 2014–15 influenza season in Philadelphia, influenza activity increased through late November and December before peaking in mid-January. Influenza A viruses predominated, and the prevalence of influenza B viruses increased later in the season. This influenza season was severe with overall high levels of outpatient illness and influenza-associated hospitalizations, especially for adults aged  $\geq 65$  years. Patient visits to doctors for influenza-like-illness (ILI) were even with the peak of 2012-2013 season and higher flu hospitalizations were seen during the 2014-2015 influenza season to what has been observed during past H3N2-predominant seasons. Overall, Philadelphia had 982 influenza-associated hospitalizations, with the majority (49%) in adults  $\geq 65$  years of age. This report summarizes flu activity by each of the surveillance systems maintained by the Philadelphia Department of Public Health (PDPH).

## Influenza-like Illness Surveillance

PDPH maintains an active surveillance system that monitors chief complaints related to emergency department (ED) visits from 17 local hospitals. De-identified data from hospital triage logs are received daily and subsequently analyzed for influenza-like illness and other syndromes of interest. Much like PDPH’s emergency department surveillance, de-identified data from several pediatric ambulatory clinics in our area are also received and analyzed in order for the detection of influenza-like illness. These data are categorized by reason of visit and measured temperature to determine the proportion of influenza-like illness (measured fever  $\geq 100^\circ$  F AND cough and/or sore throat [in the absence of a known cause other than influenza]) present at these facilities on a weekly basis. The figure below (Figure 1) depicts both surveillance systems and plots the percentage of influenza-like illness by week of visit. Emergency department visits that were due to influenza-like illness surpassed 10.7% of total visits. Pediatric ambulatory clinic office visits due to influenza-like illnesses surpassed 3.6% of visits.

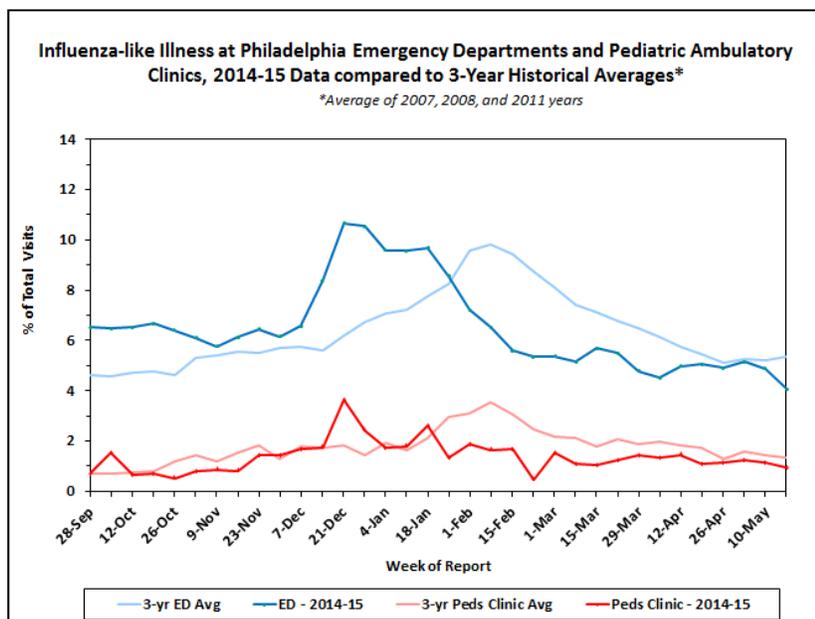


Figure 1. Influenza-like illness at emergency departments and pediatric ambulatory clinics in Philadelphia, PA from 09/28/2014–05/23/2015 compared to 3-year historical averages.

## Respiratory Virus Surveillance

PDPH’s Division of Disease Control (DDC) conducts active, laboratory-based surveillance of circulating respiratory viruses to monitor for influenza and other viral respiratory illnesses in Philadelphia. Six laboratories participate in this surveillance system, providing aggregate weekly counts of influenza. The season onset differed compared to previous seasons, as the small upswing in activity occurred earlier than normal (excluding the fall wave of H1N1 [Figure 2]). H3N2 viruses predominated; however an increase in influenza B viruses were detected towards the end of the season. The laboratories also provide data on respiratory syncytial virus (RSV), rhinovirus, human metapneumovirus, and adenovirus. Test methods vary and may include rapid antigen tests, viral culture, and PCR. The 2014-2015 respiratory virus season produced a typical RSV season, with a November onset and a peak in the early winter. Rhinoviruses spread throughout the year with only minor declines in activity during the winter (Figure 3). Human metapneumovirus and adenovirus also showed typical seasons.

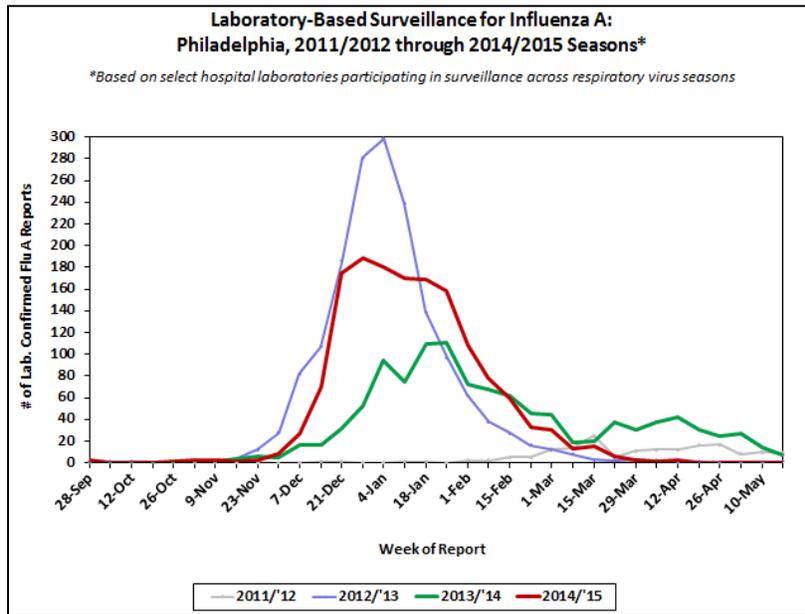


Figure 2. Laboratory-based surveillance for influenza A viruses in Philadelphia, PA from 09/28/2014—05/23/2015.

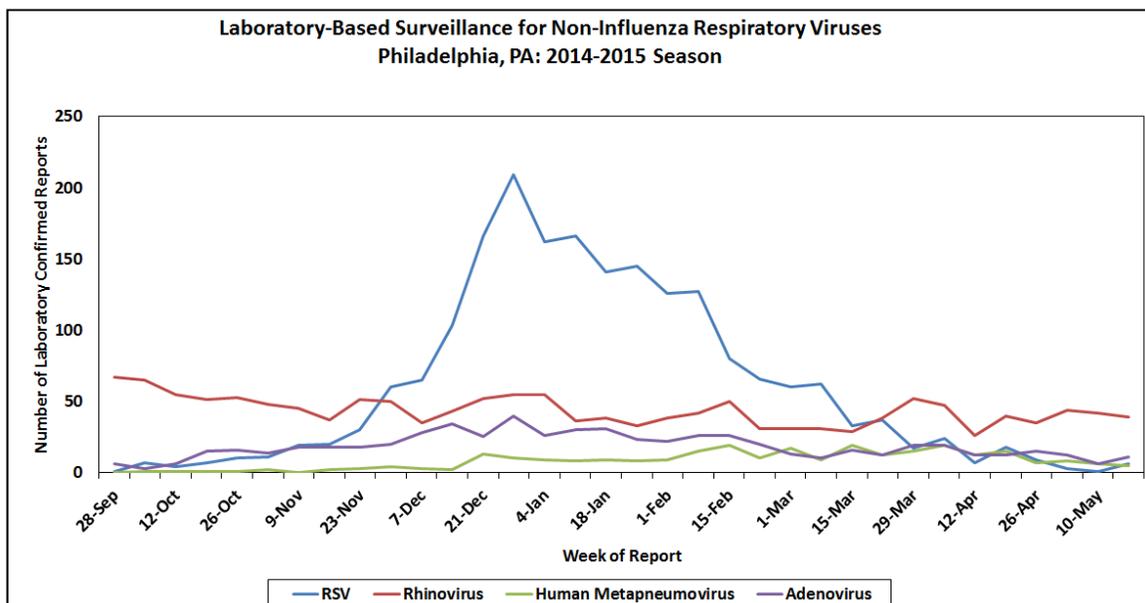


Figure 3. Laboratory-based surveillance for non-influenza respiratory viruses in Philadelphia, PA from 09/28/2014—05/23/2015.

### Severe Morbidity Surveillance of Influenza

Since the influenza pandemic of 2009, DDC has conducted surveillance of mortality and severe morbidity of influenza, including hospitalization and admission to intensive care units. Hospitalized influenza-associated cases are reported to PDPH by hospitals and labs using the PDPH Influenza Report Form and electronic reporting. Reported cases of severe morbidity illustrate that the number of hospitalizations increased from the 2013-2014 season (982 versus 819). Influenza activity was elevated during the 2014-2015 season in Philadelphia and flu-associated hospitalizations peaked in early January (Figure 4). The predominance of H3N2 viruses this season caused a significant burden of serious disease in older people (Figure 5).

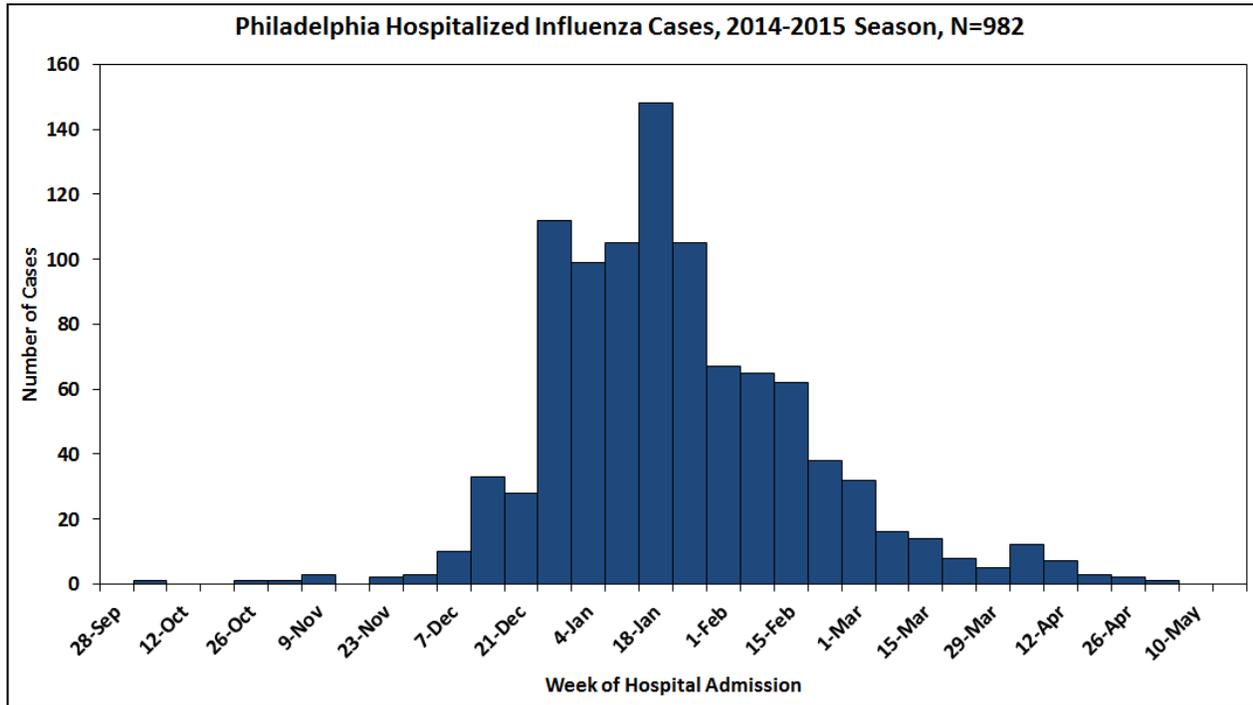


Figure 4. Reported influenza-associated hospitalizations in Philadelphia, PA from 09/28/2014—05/23/2015, N=982.

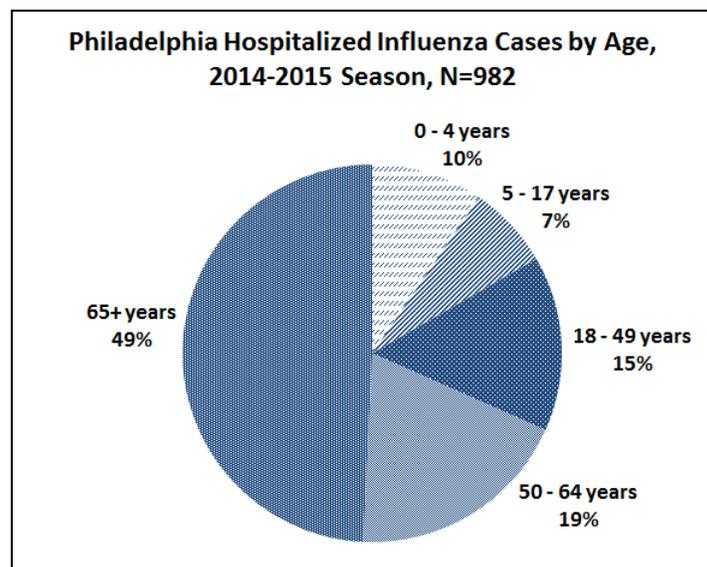


Figure 5. Hospitalized influenza cases by age in Philadelphia, PA from 09/28/2014—05/23/2015, N=982.

The number of flu-associated hospitalizations among people 65 and older is the highest number recorded since PDPH began tracking that data in 2009 (Figure 6). The most common length of hospital stay was two days (n=184, 18.7%) (Figure 7). Also during the 2014-2015 influenza season, the CDC was notified of diagnosed parotitis in persons with lab-confirmed influenza in multiple states. Parotitis is an uncommon complication of influenza and one influenza case of a Philadelphia resident with parotitis was reported to PDPH in week 1 of 2015.

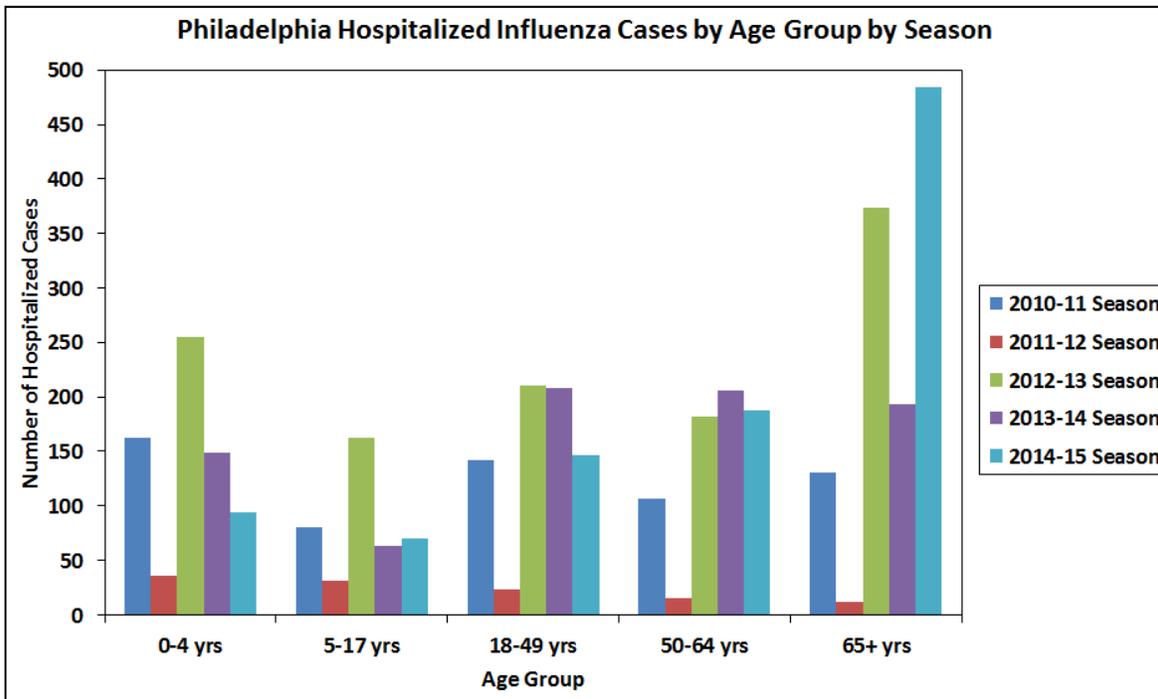


Figure 6. Reported influenza-associated hospitalizations in Philadelphia, PA by age and season from 09/28/2014—05/23/2015.

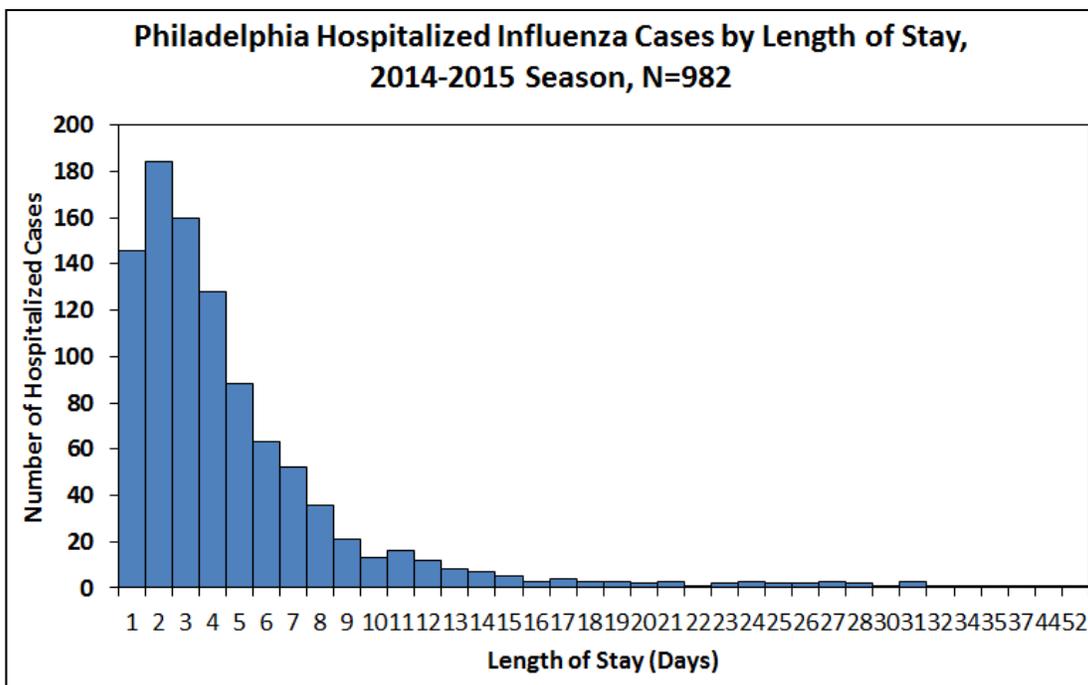


Figure 7. Reported influenza-associated hospitalizations in Philadelphia, PA by length of stay from 09/28/2014—05/23/2015.

### Influenza-Associated Mortality

Twenty-five influenza associated deaths occurred this season, including two influenza-associated pediatric mortalities. Two influenza-associated pediatric mortalities occurred in Philadelphia, one in week 4 and one in week 5. However, the majority of deaths occurred in individuals 65+ years of age (Figure 8). Additionally, 83 confirmed influenza cases in 38 long-term care facilities were reported to PDPH during the 2014-2015 influenza season.

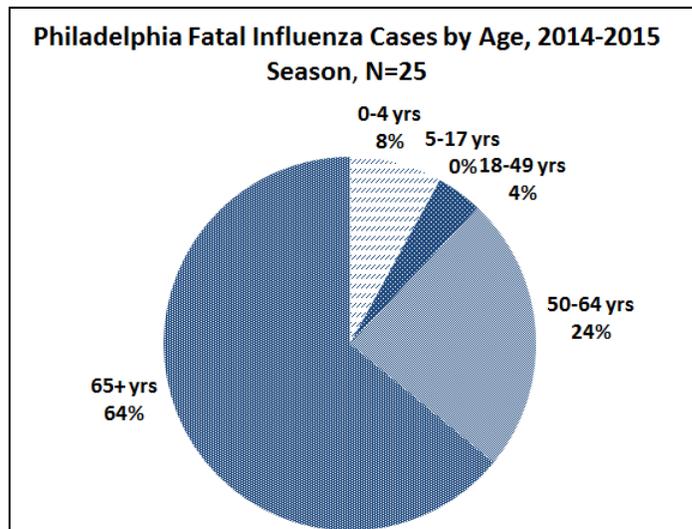


Figure 8. Fatal influenza cases by age in Philadelphia, PA from 09/28/2014—05/23/2015, N=25.

### Seasonal Influenza Vaccine for 2014-2015

The routine seasonal influenza vaccine was distributed during the fall of 2014. Seasonal influenza vaccine (available as an injection, either intramuscularly or intradermally, of inactivated influenza virus or as a nasal spray of a live attenuated virus) remains the most important measure for preventing influenza and influenza-related complications, including death. The 2014-2015 seasonal influenza vaccine contained an A/California/7/2009 (H1N1)pdm09-like virus, an A/Texas/50/2012 (H3N2)-like virus, and a B/Massachusetts/2/2012-like virus. All people 6 months and older were recommended for vaccination, while traditional high-risk groups, including children aged 6-59 months, adults 50 years of older, immunocompromised or chronically ill individuals, pregnant women, and those living or working in close contact with high-risk person, were strongly encouraged to receive the vaccine. In Philadelphia, seasonal influenza vaccination was conducted by DDC in cooperation with the Federally Qualified Health Centers, health clinics, local nursing schools, and other volunteer providers. Over 115,400 doses were administered by the Vaccines for Children (VFC), Vaccines for Adults at Risk (VFAAR), and Community Flu Programs between 8/15/2014 – 7/17/2015.

The majority of circulating influenza A (H3N2) viruses were different from the influenza A (H3N2) component of the 2014–15 seasonal vaccines, and the predominance of these drifted viruses resulted in reduced vaccine effectiveness. Due to low vaccine effectiveness during the 2014-2015 influenza season, providers were reminded to treat all hospitalized and high-risk patients suspected to have influenza with antiviral medicine.